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Bookshelving in the High School Library

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Introduction

The modern high school library, which is conceived to be an integral part of the educational system and the heart of the school, has come about under the leadership of educators and librarians, who, having seen a need for improved teaching methods, advocated the practice of using varied materials instead of the conventional single textbook for the academic subjects. When this new trend in education was established in the schools, the librarians had to make the necessary changes in the libraries, which would enable them not to passively supplement the teaching program, as they had in the past, but to complement it actively.

If the library is to become the focus point for the entire school, providing materials for all the students and all the faculty members, it must be planned in such a way as to render its facilities in the most economical and effective way possible--a condition which can only be reached after ample thought and deliberation have gone into the consideration of the physical aspects of the library. Seldom is it possible to construct a new library; often it is impossible to enlarge the present room in which the library is housed. Therefore, the alteration of the interior and arrangement of furniture and equipment will have to suffice to make the room as functional and serviceable as possible. Often the selection and arrangement of equipment and furniture is left up to the librarian.

The two most important items of physical equipment in a high school library are (a) the tables and chairs and (b) the bookshelving. These are the two basic necessities. A high school library could operate without a charging desk or card catalog with a dubious degree of efficiency, but it would not exist without the aforementioned items.

In the past when a classroom or study hall was being converted into a library or at times even when a new school building was being erected, it was taken for granted that in the library, uniform shelving, built-in or flush to the walling, should cover every inch of space not utilized by doors, windows and building maintenance equipment. Often as not this shelving was built by the local carpenter. In many instances the individual shelves were not adjustable. It is with some of these problems and aspects in mind that this consideration of shelving that is to be utilized for books in the high school library is made. Although every high school library in addition to books will have among its collection magazines and newspapers, the handling of which is difficult, due to their format and frequency, the display and storage of these materials are not discussed in this paper as the shelving used varies basically from the shelving which is utilized for books(1).

The Construction of Bookshelving

There are two kinds of shelving to consider using in the high school library: wall shelving, which by definition consists of a series of "bookcases placed against a wall"(2), and stacks, "a series of bookcases, usually double-faced, arranged in a separate room known as the stack room or in a section of the reading room for the compact storage of books"(3). It is the former, the wall shelving or variations of it, with which the high school library is mainly concerned. Since stacks are to be used "for the compact storage of books" and since the amount of room needed for book storage in a school library is relatively small (as compared to that of a college or university), in most cases the wall shelving will suffice in the school library, and provide ample space for the shelving of books when they are not in circulation. Only in the very large high school libraries will the use of stacks be employed and then just as a place to store magazines, old texts, and duplicate copies; usually these stacks will be placed in stack or workrooms. Desirably all materials to be used by the students "should be displayed on wall shelving in the reading room where they present a constant invitation to explore"(4). In this manner, the student and books will be brought together directly.

If at all possible, bookshelving, along with other standardized equipment, should be purchases from one of the firms specializing in library equipment. Even if there is an expert carpenter in the community, it is more expedient to obtain these pieces of equipment ready made(5). Having a cabinetmaker construct bookshelving is no saving of expense in the long run over purchasing the shelving from a library supply house. For one thing it is never known just when another unit of bookshelving will be needed; and while the unit may be ordered at once from a firm manufacturing them, the local cabinetmaker may be occupied or unobtainable. Even if a substitute is found, it is never certain he will duplicate his predecessor's work. Also, if the work, which requires great precision, is not executed with exacting accuracy, it will prove unserviceable. One is reasonably certain that shelving purchased from the established firms, which have behind them years of satisfactory service and valuable experience, are products of expert workmanship(6).

The general consensus concerning the construction of bookshelving for the high school library is as follows.

(a) Shelving should be made of wood. Steel shelving is cold and informal; and in the winter it often sweats, becoming clammy and uncomfortable to work with, wood being much more comfortable. Also steel does not blend as well as wood with the tables and chairs and other movable equipment, which are usually made of wood, but gives the "impression of rather harsh commercialism, and the dull green color it is usually painted is depressing"(7). Steel is more expensive to use than wood--especially where units smaller than three feet are being contemplated(8). It can be said of steel, however, that it is fire-proof and that there is never any problem of steel shelves shrinking and warping.

The hard woods--oak, maple, and mahogany--are more serviceable and durable than the soft woods, but if the soft woods are properly prepared, they may be used. It has been pointed out that of the soft woods pine becomes brittle with age and is apt to split(9). But any wood being used, be it hard or soft, must not only be carefully selected, properly seasoned, but air-dried and kiln-dried, also. This process serves to harden and inure the wood, so as to settle it permanently and render it immune to any atmospheric changes.

Today both soft and hard woods are used together to form plies of the shelving. "Any shelf made in two or three sections glued together is more apt to hold its shape than a shelf made of one piece"(10). This prevents cracking, splitting, swelling, or shrinking which is likely to occur when one solid piece is used. It is advisable to have the inner strips or core plies of soft wood with a facing strip of hardwood(11). The two alternates of wood adhere together very closely to form a sound, smooth surface.

All shelving should be finished in some way with a protective covering to prevent moisture from penetrating the wood or rot from setting in. Paint is used on shelving to harmonize with the walls and ceiling of the library, and it provides an effective protection for wood. But it hides completely the beauty of the wood, and if light colored paint is used, it will prove more difficult to keep the shelves appearing clean than if varnish or lacquer is used. Varnish, lacquer, and shellac are the more choice finishings to put on shelving, as they serve the same purpose as paint, in that they cover the pores of the wood and provide a smooth surface, and in addition they leave the grain of the wood visible.

(b) Bookshelving should be in movable units. It is never known when a desirable rearrangement of the library will become necessary. If built-in bookshelving is used, the room is frozen, prohibiting any functional change that might be essential. Architects, designing the built-in shelves, often use them as a means of carrying out the motif of the room, with thoughts of serviceability and practicability secondary to aesthetic beauty(12).

To a librarian, entering a new position and encountering built-in bookshelving in the library, the situation is distressing, as the static, immobile shelves make the acceptance of the status quo in the arrangement of the room inevitable. What may appear to one librarian to be a satisfactory arrangement will not seem so to another; and as the school program, changing and reorganizing itself all the time, necessitates the library to adapt itself readily to the educational program, the library bound by built-in shelves is hindered from the start in accommodating changes that might be desired.

And when the capacity of the built-in shelving has been reached and must be supplemented, movable units are often purchased from a library supply house and introduced, and these may differ in size and design from the shelving in use.

With the coming of modular construction--the erection of an entire building whose interior is so flexibly arranged that changes and shifts of rooms and areas may be accomplished when desired quickly and easily--the use of movable units of bookshelving will be a requirement. In a building whose very walls are movable, built-in shelving will have no place. In many instances of the modular building, units of bookshelving serve as the walls and partitions themselves.

(c) The individual shelves should be adjustable. Far worse than the built-in shelving is the unadjustable shelf, the use of which results in problems insurmountable. Even if ample room is allowed in the space between the shelves for the average book (10 inches), it is never known when a book, slightly larger, must be shelved. Also, in many high school libraries today, reference books are being shelved along with the general collection and not as a separate collection; and they usually are large books which require more space to shelve than the average 10 inches left between individual shelves.

Shelves are made adjustable in two ways. In the first method, round holes are bored in the uprights, 1 inch apart, starting 6 inches from the bottom of the shelving and going to within 6 inches of the top; into these holes metal pins--usually threaded so as to catch on the grains of wood--are placed. The shelves have slight grooves or notches on the bottom-side, which fit over the pins; and the shelves, resting in this manner on the four pins, are supported. In the second method, strips of metal are placed on the insides of the upright, each strip having every inch a slit perforated in it; into these slits are fitted small metal braces or catches to support the shelves. The former method is recommended as it enables the shelves to be changed easily and quickly; the latter method at times can prove tedious to the person trying to extract and insert the braces in order to adjust a shelf.

(d) All shelving should be open-faced. Under no circumstances should there be any unnecessary trim on the shelves(13). "Any projection, however small, either on the upright supporting the shelves, or on the shelves themselves, is evidence of bad design and will undoubtedly cause damage to books"(14). Never should shelving have doors, except in the very special situation of the closed or locked case where the rare or valuable books may be placed.

When built-in shelves are used, the architect will be prone to clutter up the shelves with trim and molding which, although it may be attractive and carry out the general theme of the room, is very impractical from the standpoint of service and use, as it has no functional purpose. It will tend to be only a bother. Some shelving is built-in with an arch at the top of it, often corresponding to the windows being used in the room; this is a waste of space and of no value, other than an aesthetic one, for this space could be used for closed storage cabinets.

(e) The dimensions of the shelving should adhere to standards. The American Library Association has set up the following recommendations of shelving dimensions. These standards have not been reached arbitrarily; they have evolved from the use and service of shelving through the years. They are not exacting dimensions and may vary slightly, but they are what have generally been found to be practical for bookshelving in the high school library(15).

Length of shelves between uprights.....3 feet

Depth of shelves
- Standard.....8 inches
- For oversized books.....10-12 inches
- For periodicals.....12 inches

Thickness (hard wood).....7/8-13/16 inches

Height of case
- Base.....4-8 inches
- Cornice.....2-3 inches

Total height for Senior School.....6-7 feet

Space (in clear) between shelves.....10 inches
(This is an average. Adjustable feature care for over-sized books.)

Whether the shelving should be provided with backing is largely a matter of preference. Backing does not serve structurally to support, brace, or reinforce the shelving. The only place where backing is absolutely necessary is where shelving is placed in front of a recess; here it must be used to keep the books from being pushed off the shelves. Often when a wide baseboard has been placed around the room and shelving cannot be fitted closely to the wall, backing will keep the books from falling between the shelving and the wall. Backing may be press-wood or 1/4 inch repressed masonite(16).

Backing also permits the shelves to be cleaned and repainted easily. When backing is painted the same color as the uprights, it gives the shelves a sense of uniformity. Or the backing may be painted another color to harmonize either with the shelving or the room. A room can be livened up and drawn together through the use of painted backing.

When no backing is used, the white plaster walls behind the bookshelving can be painted(17). But this has the disadvantage that when shelving units are shifted around the room, perhaps a counter height unit replacing a 7 foot unit, the wall will be of a different color. It must be obvious that when backing is used and the shelving is being refinished, especially if paint is to be the protective covering, the individual shelves should be removed before the backing is painted. If not, later when the shelves are being readjusted, unpainted strips will be visible.

The Amount of Bookshelving

The amount of shelving provided in the high school is important. There should not only be ample room for the present collection but sufficient space included for future growth and expansion. Books should never be crowded or packed in on the shelves. The lower shelves especially should not be crowded; it is necessarily more awkward anyway to remove and replace books on these shelves. Tightly packed shelves do not induce the students to browse among the books by pulling those titles which interest them off the shelves and flipping through the pages.

The size of the collection in a high school library is more static and fixed than is the collection in a college or university library. There are two main reasons for this. First, the high school library is not a research or depository center; there is little reason to save old materials. A school library that is constantly weeding out unused and out-of-date materials is a more functional and serviceable library than one which retains all of the old dead materials. For a second thing, there is just so much material which is suitable and applicable to school use. Only the best material should be provided and the majority of the materials available do not fall in this category. Therefore the collection in a school library is often small, not because of choice or lack of funds, but because of the lack of suitable materials. This fact that the school library collection will not be growing with as much rapidity as that of other types of libraries is an important factor to keep in mind when estimating the amount of shelving to be provided.

The American Library Association in the standards for school libraries has given the capacity estimate as 8 books per shelf-foot(18). Using this as the measurement for estimating the amount of shelving to be included in the high school library and applying it to the quantitative standard for the number of volumes suggested for school libraries by ALA(19), the following table shows the

amount of bookshelving required by the library as based on the number of volumes in the collection.

TABLE 1. AMOUNT OF SHELVING REQUIRED IN SCHOOL LIBRARIES ACCORDING TO NUMBER OF VOLUMES.

Enrollment of School	Minimum Number of Volumes	Amount of Shelving (in feet)
200	2,000	250
500	5,000	625
1,000	7,000	875
2,000	10,000	1,250
3,000	12,000	1,500
5,000	15,000	1,875

A school library would not necessarily have all this footage of shelving in the standard 3-foot by 6-7 foot units. There are variations of it, double-faced counter height shelving, small movable units, display troughs, the use of which tends to make the library more functional and serviceable, while also getting away from rigidity and formality.

The Different Types of Shelving

"Double-faced counter height shelving may be used...to supplement wall shelving in the reading room. When so disposed as to form open alcoves sometimes fitted as browsing nooks, or to set off special reading centers fully visible from the librarian's desk, it gives the air of coziness and does not interfere in the least with supervision. It is greatly to be preferred to the older type of alcove bounded by seven-foot shelving"(20). It is also preferable to have these bay arrangements between windows for then the books are easy to see and the space is suitable for tables(21). If the area is not used for a study space, easy chairs may be substituted for the conventional library table and chairs.

When the classification of books in a library is by large subject field groupings, the alcoves may be devoted to the different subject fields; in this way, the school library is setting up modified forms of departmental libraries within the one room. Students desiring books about a specific subject soon learn to which alcove to go. Another use that can be made of these counter height units is in the formation of work space and of the librarian's "office" in the one room library, by arranging the units to block off the desired space from the rest of the room.

Shelving units may be placed on rollers. They may be wheeled around the library easily; then, when not in motion, they may be fastened to the floor.. These units of bookshelving on rollers could be loaded in the library and moved into the classroom where they could house the classroom collection. The dictionary stand may, also, be placed on rollers. One school library has devised what is referred to as the "dolly unit"(22). Somewhat like a book truck, this unit of bookshelving on wheels has provision for carrying books of varied sizes, and periodicals and newspapers; it also has bulletin-board space to display news about books of current interest. This unit may be rolled into the classroom as it is needed or placed in the hall to attract the students' attention.

The use of the book trough, either double-faced upright or single-sided table units, for displaying books is also recommended. Books that are singled out and placed in the trough naturally attract the students more than those left on the shelves. Just as good for display purposes, however, is the placing of books on a table. Anyone watching people enter a library may note that they are aware of the limited number of books that are on display and often stop to examine them to see what their special qualities are. However it must be remembered that, in the displaying of books, the books themselves must be changed often enough so that the patrons will not become so familiar with the titles they will not pause to examine them. Especially is this true in the high school library to which students may be coming daily. The double-faced upright book trough besides being used to display books serves as a means of directing or steering traffic when placed in the center of a large floor area.

A double-faced counter height unit can be purchased which has indented in its top a book trough. However, if the top of the counter height unit is used for the examination of books, the trough will be in the way.

Being used more and more in libraries are the tilted and sloping shelves. The tilted shelves do not require that the case be extended any but that the lower shelves be brought out slightly and tipped downward at the back, while the sloping shelves require that the case be extended outward--sometimes a whole foot or more beyond the space occupied by the standard unit--and the three lower shelves sloped back toward the wall.

The advantage of these two types of shelving warrant their purchase. Persons browsing seldom see the books on the lower shelves. The introduction of these shelves may or may not increase the circulation, but they do make it easier for patrons to see the books on the lower shelves(23). And especially in libraries where lower shelves are used extensively, either the tilted or sloping shelves are recommended. It is also true that these types of shelving are easier to light than the standard units. The sloping shelving is the more desirable of the two since it facilitates seeing the books on the lower shelves better than the tilted shelving; however the floor and aisle space lost when using sloping shelving is from 10% to 20% more than where tilted or standard shelving is used(24). In addition, a unit of sloping shelving usually has only 6 shelves, while the other units provide for 7. Cork or rubber matting should be placed on both tilted and sloping shelves to keep the books from slipping.

Two types of shelving which have been used to advantage and of which more use may be made in the future are sectional shelving and collapsible shelving. The former, with each individual shelf a separate unit fitted one on top of the other, makes it possible for some wall space--for example, under a low window--to be utilized for bookshelving. Since it is too low for standard units, this space might otherwise be lost, but by stacking up units of sectional shelving any height of wall space may be utilized. Sectional shelving may be used to break up the formality and rigidity that occur when the shelving in a library is all of one height. Stair-step effect of shelving along a wall may be provided by the use of these sectional shelves. On the tops of these different levels of shelving a few books can be effectively arranged for display purposes.

Collapsible shelving consists of uprights which are held and fastened by cross-pieces of wood which fit into the upright. On these cross-pieces of wood the shelves are placed. The whole unit may be assembled or disassembled easily and simply. This type of shelving could be used for display purposes, then folded up and stored until needed again. And when collections of books are needed in the classroom, sections of collapsible shelving could be taken there and set up to hold the books.

The Arrangement and Setting of Shelving

Often the room in which the high school library is to be housed is complete before any consideration is given to the arrangement of the furniture and equipment. The librarian is constantly desiring to make changes in the layout of the library and is confronted with the problems caused by the physical plan of the room. Once the building is completed, there is little that can be done to alleviate the situation, for the changes and alterations are often too expensive. Many of the difficulties which arise are the results of planning which does not take into consideration the uses to which the room will be put; in many instances, these difficultues cannot be overcome. There are several considerations, in connection with bookshelving, which the architect should bear in mind when planning the room that is to be occupied by the library. Attention to these considerations is essential if the library is to be functional--both now and in the future.

As much wall space as possible should be left vacant for bookshelving. Since most units of bookshelving are never less than 3 feet in width, any wall space less than this is usually lost, for it is very difficult to utilize a narrower space for the location of shelves, as it entails the construction of specially tailored units. And, because of the small number of books they can accommodate, these units do not warrant the extra expense of their purchase. When doors and windows are being placed in the room, it should be remembered that the wall area should be broken as seldom as possible and that the most desirable space should not be devoted to doors, for the management of a library is easier when the collection is in one continuous body than when it is broken up into isolated segments by doors and windows. This is especially true in libraries using the Dewey classification and arranging the books in one uninterrupted sequence. If bay windows are used in the room, they should be large enough so that they may be utilized either for special shelving or tables, not for mere decorative purposes alone(25). Pipes, thermostats, and light switches should be omitted from that wall space which is to be utilized by bookshelving. In no circumstances should a thermostat or light switch be located behind the bookshelves. A single pipe can often prohibit the use of several feet of wall space. These are problems which the architect must take into account when he is designing the layout for the library.

Where shelving is to be placed, wainscot and baseboard should be omitted and the wall plastered to the floor. The use of either wainscot or molding will keep the shelves from fitting tightly against the wall(26).

Shelving placed under windows is not too desirable, because the brightness of the glare outside on a sunny day, contrasting with the amount of light within the room, produces what is known as a silhouette-effect and makes it difficult for one to read the titles while facing the window. As a general rule, if possible, shelving should be placed opposite windows rather than under them. However in the case of bilateral lighting, which usually requires full-length windows on one side of the room and high windows on the opposite wall, standard bookshelving units could be placed under the latter type of windows. In many libraries, the space directly under the windows will be occupied by radiators; the space above cannot be used for bookshelves unless proper insulation is installed.

A consideration of the setting into which the shelving is to be placed is important. Since the physical features of the room determine various features of the shelving, the part played by the architect and librarian in the planning of this room will ultimately decide the type of shelving to be used. And just as the room affects the shelving, the type of shelving to be used will influence the design of the room.

In the reading room of one college library there has been foreseen the influence of design upon the placement of shelving units(27). In this room use was made of a "saw-tooth" wall. This type of wall, composed of alternating window and wall space serrated, could be used to advantage in a high school library. Shelving units could be placed against the wall space. In each protruding notch an individual desk could be placed, offering a certain amount of privacy and seclusion from distraction.

Circular bookcases have been used to advantage in several bookstores. These half-circle shelving sections, built in units, with a diameter of approximately 10 feet, provide alcoves where materials of related subjects may be placed. A series of three or four of these semi-circular alcoves in the high school library would serve not only as a means of easy classification arrangement, but also as a means of breaking up the formality and rigidity which occur when an unbroken sequence of standard units are used.

Shelf Labels

"Shelf labels within a library serve...readers and indirectly aid assistants as well. Signs that can be read from a distance and that indicate the location of books on special subjects, or directional notices that inform a patron where information is available, or signs that urge them to use the catalog or reference tools, all play an important part in making a patron feel at home. Too many, complicated, or too ornate signs confuse and hinder, but simple, clear and direct ones serve a helpful purpose"(28). Since few people ever go to the catalog in an open-shelf room to find the location of a book, they should be easily and quickly directed to the section they seek by the use of good intelligent labels. It should be remembered that few people other than librarians are familiar with the meaning of the Dewey classification numbers. Although the librarian will know this special numerical language, the persons using the library will not, and the use of it on labels will be of no great help to them. Also, instead of using standard subject-headings on the labels, which are often archaic, pedantic and misleading, words or phrases of correct use in present-day vernacular should be used. For example, "Oceanica" is better expressed as "South Seas"(29).

Often labels are too small because they must not exceed the thickness of the shelf to which they are attached; this necessitates the use of small print and consequently the reading of them from any distance is impossible. Large labels, clearly printed, should supplement the shelf labels and be attached to the top of the shelving unit to serve as guides to the type of books shelved in the unit.

Conclusion

As yet very little thought or experiment has been given to the innovation of shelving. Bookshelving remains today what it has basically been since the development of the modern library. There is a need and a challenge to architects and librarians to create new types of shelving and combinations of them which will enhance the libraries into which they are placed. The rigidity and formality of shelving persist today. For the libraries of yesterday the shelving was sufficient, but with the coming of the new library buildings of tomorrow, there will be a need for units of shelving that fit the rooms in which they are to be placed. It is almost with incredulity that one approaches the shelving used today in the typical high school library. There is a need for imagination and creativeness to break up the formalized pattern into which the design has fallen. To visualize the shelving of today occupying such a place of prominence in the libraries of

tomorrow is to picture the old appliqued very inappropriately on the new. There is not only the necessity of a new trend, but great opportunities for it.

Units of shelving as such rather limited the imagination; they possess certain demands in their construction which are boundaries in themselves. That they must be movable, adjustable, and proportional may be confining elements; but their arrangement and disposition have feasible potentialities. The person approaching the subject must realize that shelving units may be utilized beyond being just receptacles for books and as an intricate part of the design of the room.

Somewhat comparable to the thesis of modern architecture that the building must fit the land, be suited to it, be compatible both aesthetically and practically, is the idea that the furnishings and equipment in a room must be applicable to that room. There is then the serious difficulty of obtaining furnishings which will meet with the individual needs of the room. The solution to this problem is not found in the library supply house catalog; bound by tradition, these firms today produce units to supplement similar units of shelving which have been in use from one to several decades. Nor does the solution rest with the local carpenter or cabinetmaker. There is at present no satisfactory solution.

It will be up to the librarians in the future to decide first what is serviceable, practical, and necessary; and second to combine these elements with the aspects of the room into which the shelving is to be placed. The designing in regard to the room will be worked out by a designer or architect, but he must work with the librarian in considering the elements of service--information which only the librarian can supply. The librarian must first decide what he needs, what will fit his individual situation. These ideas must be formalized; they must be experimented with; and eventually they must find their way into the catalogs of library supply houses. There is a need for a wider selection of ready built units of shelving. Only when the proper demand is felt will the present selection be increased by the companies supplying equipment to libraries.

FOOTNOTES

(1)This present paper is a condensation of a longer report, Bookshelving in the High School Library, which was submitted to the University of Illinois Library School as a Master's degree paper, in the Spring of 1949. This paper may be secured through inter-library loan. In it the problems of storage and display of magazines and newspapers and other problems of shelving, which are irrelevant to this shorter paper, are discussed.

(2)American Library Association, A. L. A. Glossary of Library Terms (Chic.: ALA, 1943), p. 126.

(3)Lucile F. Fargo, The Library in the School (4th ed.: Chic.: ALA, 1947), p. 228.

(4)Ibid., p. 214.

(5)L. Marion Moshier and Helena S. LeFevre, The Small Public Library: Organization, Administration and Service (Chic.: ALA, 1942), p. 38.

(6)Fargo, op. cit., p. 224.

(7)C. N. MacLeod, "Furnishing the Library," School Librarian, 1 (December, 1937), p. 9.

(8)Joseph L. Wheeler and Alfred Morton Githens, The American Public Library Building (N.Y.: Scribner, 1941), p. 428.

(9)S. A. Loweth, "Erection of Five School Libraries in Kent," School Library Review, 2 (Summer Term, 1939), p. 140.

(10)Wheeler and Githens, op. cit., p. 429.

(11)Ibid.

(12)Fargo, op. cit., p. 225.

(13)Ibid., p. 229.

(14)MacLeod, op. cit., p. 7.

(15)American Library Association, School Libraries for Today and Tomorrow: Functions and Standards (Chic.: ALA, 1945), p. 42.

(16)Wheeler and Githens, op. cit., p. 429.

(17)Edward L. Tilton, "School Libraries," Library Journal, 55 (March 15, 1930), p. 253.

(18)American Library Association, op. cit., p. 42.

(19)Ibid., p. 41.

(20)Fargo, op. cit., p. 228.

(21)MacLeod, op. cit., p. 7.

(22)"Carpinteria Adopts Equipment to Meet New Demands," California Journal of Secondary Education, 12 (May 1937), p. 292.

(23)Ralph R. Shaw, "The Influence of Sloping Shelves on Book Circulation," Library Quarterly, 8 (October 1938), p. 490.

(24)Wheeler and Githens, op. cit., p. 436.

(25)Often counter-height shelving may be arranged in bay windows, and the areas used as browsing corners or nooks.

(26)Maud Minster, "Librarian Chats with the Architect," American School Board Journal, 98 (January 1939), p. 64.

(27)A. S. Macdonald, "New Possibilities in Library Planning," Library Journal, 70 (December 15, 1945), p. 1169.

(28)Moshier and LeFevre, op. cit., p. 116.

(29)Lois E. Fisher, "An Experiment in Amalgamation," Library Journal, 64 (February 15, 1939), p. 123.

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